

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of transmitting routing information comprising:  
sending a first message containing a first sequence identifier and a digest of routing information that has been calculated using a first authentication key; and  
subsequently sending a second message containing a second sequence identifier that is earlier in a sequence than the first sequence identifier and a digest of the routing information that has been calculated using a second authentication key;  
wherein the second sequence identifier is sequentially related to the first sequence identifier.
2. (Original) The method of claim 1 wherein each authentication key has a specified lifetime and the lifetime of the second key expires prior to the lifetime of the first key.
3. (Original) The method of claim 1 wherein the first key is valid only following an authentication key rollover and the second key was valid at a time prior to the authentication key rollover.

4. (Original) The method of claim 3 including:
  - determining whether neighboring routers have successfully performed the authentication key rollover; and
  - sending both the first and second messages only if it is determined that at least one neighboring router has not yet successfully performed the authentication key rollover.
5. (Original) The method of claim 4 including sending only the first message if the first message forms part of a routing information advertisement that is the first such advertisement transmitted by the router after the authentication key rollover.
6. (Original) The method of claim 3 including sending only the first message if it is determined that all neighboring routers have successfully performed the authentication key rollover.
7. (Original) The method of claim 3 including:
  - receiving the first and second messages in a particular neighboring router; and
  - processing, in the particular neighboring router, only the digest contained in the first message.
8. (Original) The method of claim 3 wherein the first sequence identifier comprises a number greater than the second sequence number.

9. (Currently Amended) A router comprising:

a port; and

a processor configured for sending a first message and a second message over the port to a neighboring router, and configured for sending the first message prior to the second message, wherein the first message contains a first sequence identifier and a digest of routing information that has been calculated using a first authentication key, and

wherein the second message contains a second sequence identifier that is earlier in a sequence than the first sequence identifier and a digest of the routing information that has been calculated using a second authentication key, and

wherein the second sequence identifier is sequentially related to the first sequence identifier.

10. (Original) The router of claim 9 wherein the processor is configured for sending both the first and second messages only if the router determines that fewer than all of its neighboring routers have successfully performed an authentication key rollover.

11. (Original) The router of claim 10 wherein the processor is configured for using as the first key a key that is valid only following the authentication key rollover and to use as the second key a key that was valid at a time prior to the authentication key rollover.

12. (Original) The router of claim 10 wherein the processor is configured for sending only the first message if the first message forms part of a routing information advertisement, and the routing information advertisement is the first such advertisement transmitted by the router after the authentication key rollover.

13. (Original) The router of claim 10 wherein the first sequence identifier comprises a number greater than the second sequence number.

14. (Currently Amended) A computer system comprising:  
a plurality of computer networks;  
a first router interconnecting at least some of the computer networks; and  
neighboring routers coupled to the first router,  
wherein the first router is configured for periodically sending respective first and second messages to one or more of the neighboring routers, and for sending the first message prior to the second message,  
wherein the first message contains a first sequence identifier and a digest of routing information that has been calculated using a first authentication key, ~~and~~  
wherein the second message contains a second sequence identifier that is earlier in a sequence than the first sequence identifier and a digest of the routing information that has been calculated using a second authentication key, and

wherein the second sequence identifier is sequentially related to the first sequence identifier.

15. (Original) The system of claim 14 wherein the first router is configured for sending both the first and second messages only if the first router determines that fewer than all of the neighboring routers have successfully performed an authentication key rollover.

16. (Original) The system of claim 15 wherein each neighboring router that receives the first and second messages is configured for:

processing the first message using the first authentication key and discarding the second message without processing the routing information contained therein if that neighboring router has successfully performed the authentication key rollover, and

processing the second message using the second authentication key if that neighboring router has not successfully performed the authentication key rollover.

17. (Original) The system of claim 15 wherein the first router is configured for using as the first authentication key a key that is valid only following the authentication key rollover and for using as the second authentication key a key that was valid at a time prior to the authentication key rollover.

18. (Original) The system of claim 15 wherein the first router is configured for sending only the first message if the first message forms part of a routing information advertisement that is the first such advertisement transmitted by the first router after the authentication key rollover.

19. (Original) The system of claim 15 wherein the first sequence identifier comprises a number greater than the second sequence number.

20. (Currently Amended) An article comprising computer-readable medium storing computer-executable instructions for causing a router to:

send a first message containing a first sequence identifier and a digest of routing information that has been calculated using a first authentication key, and  
subsequently send a second message containing a second sequence identifier that is earlier in a sequence than the first sequence identifier and a digest of the routing information that has been calculated using a second authentication key,

wherein the second sequence identifier is sequentially related to the first sequence identifier.

21. (Original) The article of claim 20 wherein the first key is valid only following an authentication key rollover and wherein the second key is valid at a time prior to the authentication key rollover.

22. (Original) The article of claim 21 including instructions for causing the router to:  
determine whether neighboring routers have successfully performed the authentication  
key rollover, and  
send both the first and second messages only if it determined that at least one neighboring  
router has not yet successfully performed the authentication key rollover.
23. (Original) The article of claim 22 including instructions for causing the router to send  
only the first message if the first message forms part of a routing information advertisement that  
is the first such advertisement transmitted by the router after the authentication key rollover.
24. (Original) The article of claim 22 including instructions for causing the router to send  
only the first message if it is determined that all neighboring routers have successfully performed  
the authentication key rollover.
25. (Currently Amended) A method for use in connection with a router comprising:  
receiving in the router a first message containing a first sequence identifier and a digest  
of routing information that has been calculated using a first authentication key;  
subsequently receiving in the router a second message containing a second sequence  
identifier that is earlier in a sequence than the first sequence identifier and a digest of the routing  
information that has been calculated using a second authentication key; and

processing the first message using the first authentication key and discarding the second message without processing routing information contained therein if the router has successfully performed an authentication key rollover from the second key to the first key;

wherein the second sequence identifier is sequentially related to the first sequence identifier.

26. (Original) The method of claim 25 including processing the second message using the second key only if the router has not successfully performed the authentication key rollover.

27. (Currently Amended) A router comprising:

a port; and

a processor configured for:

receiving a first message containing a first sequence identifier and a digest of routing information that has been calculated using a first authentication key,

subsequently receiving a second message containing a second sequence identifier that is earlier in a sequence than the first sequence identifier and a digest of the routing information that has been calculated using a second authentication key, wherein the second sequence identifier is sequentially related to the first sequence identifier, and

processing the first message using the first key and discarding the second message without processing routing information contained therein if the router has successfully performed an authentication key rollover from the second key to the first key.

28. (Original) The router of claim 27 wherein the processor is configured for processing the second message using the second key only if the router has not successfully performed the authentication key rollover.

29. (Currently Amended) An article comprising computer-readable medium storing computer-executable instructions for causing a router to:

receive a first message containing a first sequence identifier and a digest of routing information that has been calculated using a first authentication key;

subsequently receive a second message containing a second sequence identifier that is sequentially related to the first sequence identifier and earlier in a sequence than the first sequence identifier and a digest of the routing information that has been calculated using a second authentication key; and

process the first message using the first key and discard the second message without processing routing information contained therein if the router has successfully performed an authentication key rollover from the second key to the first key.

30. (Original) The article of claim 29 including instructions for causing the router to process the second message using the second key only if the router has not successfully performed the authentication key rollover.